ADDRESS TO CONFERENCE ON AMERICAN HUMAN RESOURCES
TO MEET THE SCIENTIFIC CHALLENGE
YALE UNIVERSITY
February 3, 1958

THE SOVIET CHALLENGE

INTRODUCTION

It is certainly timely that a group of experts in the field such as is gathered here should consider American human resources to meet the scientific challenge. My share of the task in the brief time allowed, is to ~~deal with~~ the challenge ~~of~~ Soviet scientific and technological advances ~~and their concomitant economic, industrial development, rather than with the response to that challenge~~.

It is not easy to divide the problem into tidy compartments. Science pervades the Soviet military threat, its industrial and economic progress with its appeal to ~~other~~ countries and even the subversive side of their operations. Here they have shown the most sophisticated developments in the field of communications and can boast of a clandestine communications network showing the highest scientific techniques in this field. The challenge is indivisible with science and technology at its core.

~~When we speak of the scientific challenge, obviously most attention is directed almost exclusively to that of the Soviet Union.~~

Right at the outset I want to add my support for measures to help pool American and scientific assets

~~Fortunately the efforts of the~~ free world are beginning more and more to be pooled in the common interest of our common defense of the free way of life. This is not yet as complete as it should be and security reasons are generally advanced as the reason for moving slowly. Obviously, there must be some balancing of risk and security precautions should not be done away with. If the legislative bars against certain phases of our cooperation with certain other countries in the nuclear field are removed, it will be a step in advance, and a calculated risk I think we should surely take. Certainly in the field of intelligence this will add considerably to our over-all ability to analyze the nature and extent of the Soviet nuclear threat. The advantage of such informational exchanges on a "need-to-know" basis between countries where each has the capacity to help the other outweigh the security hazards.

Any competence I might have to be included in such a program as this would lie in the appraisal of Soviet capabilities and intentions, rather than ~~in that of~~ our own ~~ability~~ to meet this threat. I can assure you, however, that we in government are not overlooking the need for current and up-to-date appraisals of exactly where we ~~estimate~~ we stand in relation to any potential enemy. Neither our potential or that of the Soviet can be viewed in a vacuum. Each must be viewed in perspective so that we can get the best possible view of our relative ability for offense and defense in the critical areas of national security where the U. S. S. R. presents us with a competitive challenge.

As a man who majored in philosophy and took Greek throughout his college career, with no mathematics beyond advanced Algebra and a year of physics, I approach the scientific subjects with humility and awe. Out of this ignorance comes a profound respect.

During the seven years I have been in my present work, I have been putting a major emphasis on developing the scientific side of intelligence, both as a major target and as a major arm in the collection of intelligence. ~~If I have done anything in this time possibly it is to help convert~~ intelligence collection techniques from the Mata Hari to the ~~metaphysical age~~.

AMERICAN REACTION TO SOVIET SCIENTIFIC ACHIEVEMENTS

Contrary to the generally accepted view, ~~I venture the judgment~~ that nothing has happened during the past six months to change our basic estimate of the Soviet challenge. Here and there time tables of when various new weapons might come into inventory have been stepped forward from a few months to about a year. We have not, however, basically changed our views of Soviet intentions or ~~basically~~ stepped up our appraisal of Soviet overall capabilities.

What has happened has been that we have had the world has a spectacular demonstration of the great technical competence of the Soviet in the field of earth satellites, ballistic missiles, ~~propulsion, and the like.~~ This had been well documented beforehand but by and large received with skepticism in this country.

I think we must really thank the Soviet for having dramatised their competence and mightily reduced, in this country at least, the ranks of those who could not bring themselves to believe in the high technological capability of the Russians. Certainly American reaction to the orbitting of the Sputniks exceeded the expectation of those of us in the intelligence field who had been following month by month a development of Soviet science over the past decade not only in this particular field but in aviation, electronics, communications, ~~and the like.~~

When one is accustomed to be first, it is always a shock to find that that is not the case in a particular field and an important one. We were first in the dramatic break-through in the atomic field, then in the thermonuclear fusion field and then, as evidenced by the atomic submarine, in the application of atomic power in an important military

area. On analysis one would find that the margin by ~~which we won these~~ our lead particular competitions was tending to narrow.

Now in a dramatic way the Soviets have their "first" and there is a feeling of shock and chagrin over it. There is also a tendency to suggest that there was some failure to keep the American people advised as to Soviet scientific progress which led to this result.

Personally, I am more inclined to attribute the shock we have received to a somewhat ingrained national attitude based on our own very real scientific achievements and on a tendency which has particularly developed since World War II, to discount the capabilities of others.

Also many have instinctively assumed that in the fields of scientific achievement a free enterprise system would inevitably lead in all sectors a state whose economy is controlled by Fascist or Communist-type state dictatorship. We also assumed that inevitably our system -- the free enterprise system -- will come out on top.

It goes without saying that I am a firm believer in the free enterprise system but we must look facts in the face. In the days before the Second World War, sad mistakes were made by Britain and its Allies in failing fully to understand the nature of the Nazi threat in the field of aviation. The low regard for the type of government in Germany under Hitler led us to look rather at their shortcomings than at their actual military accomplishments. We suffered from somewhat the same mistaken psychology as regards Japan in the days before our entry in the war in 1941.

The result turns not so much on the type of government, so long as it has technical competence, as it does on the goals set, the energy applied.

Under normal conditions a liberal democratic free enterprise society concentrates on the development of what the people need to improve their livelihood and to raise their living standards. In a

society controlled by dictatorial leaders, with the centralization and socialization of industry ~~and production~~, the leaders are able, for a time at least, to fix the goals and priorities and what the mass of the people want comes second. I have said "for a time." It may be difficult to carry on such a policy indefinitely as some day the people may revolt against such programming.

The USSR has a national production of some 40% of our own. If one includes on our side the segment of the free world allied with us and adds to the Soviet the questionable assets of unhappy satellites, the margin in favor of the West is much greater. Yet the Soviet today are producing in the military field, hardware and assets very nearly equivalent to our own. The fact that they are able to do this with less than half of our industrial potential is due to two factors: (1) the different cost basis for military manpower as contrasted with that

for us; (2) the percentage of gross national product devoted to military ends. (3) high concentration of scientific competence in military fields.

Under these circumstances it is no wonder that from time to time we will have the shock of finding that the Soviet have occasionally outstripped us in particular ~~in certain areas, particularly~~ in military areas, where they have put a major emphasis, as for example they have done in the missile field.

There is no reason to seek any mysterious or esoteric answer.

The fact is that since shortly after the close of the war in 1945 when they took over the German hardware and a large group of German scientists with their blueprints and plans in Peenemunde and elsewhere, they have spent in this field more manhours than we and they have done it under highly competent native scientific and technological leadership with the necessary tools, equipment and priorities. While they profited

greatly by German technological achievement up to 1948, during the last decade it has been largely a native Soviet achievement.

History is full of examples where the high standard of living countries placing emphasis upon those things which make the rounded, developed and cultured human being with leisure for a broadened life have failed to comprehend the extent and nature of external threats from the Spartas which have concentrated on military might. All you need do is read your history from the Greek and Roman days right down to England and France before World War II and even read it in our own history.

A free people such as ours seems to require at periodic intervals dramatic developments to alert us to our perils. Many are saying that this shock treatment should be replaced by a continuous process of indoctrination which could and should be furnished by government agencies. I am somewhat doubtful as to its efficacy. We incline

Come from Americans
~~to be skeptics~~. By and large, the press does a good job in this field. Its sources of information are wide and varied, ~~and if one added to what they publish information from secret and classified sources, while it would add something, it probably would not tip the scales.~~ Jeremiads from government leaders are generally ~~looked upon as~~ regarded tinged with political and budgetary objectives.

Recently there has been a tendency to say that if only the Central Intelligence Agency had been believed, everything would be well. This view is a great over-simplification. There never has been a time in history to my knowledge and I have been in this field of work for many years, when intelligence has had as clear an opportunity to be influential as it has had in recent years. The National Security Act of 1947, creating the Central Intelligence Agency, has given the Intelligence Community in the framework of our government a more

potentially influential position than has any other intelligence agency, in my opinion, in any other government of the world. If in our government, intelligence estimates have not always had the impact that in the light of hindsight they may have deserved, responsibility ~~has very largely with~~ the intelligence producer.

It is well to remember that when intelligence deals with a closed, carefully guarded target such as the Soviet with all the protection that is thrown around their military planning, their projects and developmental programs, often the best we can do is to estimate trends and make predictions as to probable events. No intelligence report can have the impact of a Sputnik.

Maybe we are fortunate that over the last decade, particularly in our relations with the USSR, we have had a series of political, economic and military Sputniks -- costly as some have been -- to

help alert us to our dangers. First the Soviet threat to take over Western Europe, devastated and disillusioned after World War II, which led to the Marshall Plan and the Truman Doctrine; the Berlin Blockade in 1948; the Korean War in 1949 -- each of these, plus the tragic loss of China have helped to alert us to different facets of the overall communist menace. Now we know better the nature of our competition in the field of science. In our work in intelligence we have consistently proceeded on the theory that in the field of technology and science the Soviet can do what we can do if they felt it vitally important to their national security. If we did it first they would follow along and achieve their result within a reasonable period after we had announced our own success.

Also we have estimated that in view of their high technical competence, if they put into a particular field of scientific endeavor more scientific brainpower, more manhours, and more logistic support

than we, they would achieve superior results to those that we achieve. This seems almost too simple to need stating, but I believe it is often overlooked.

In 1945, as I have indicated, both we and the Russians took over a large part of the German know-how in the field of the V-2 ballistic missile with its range between 150 and 200 miles. They probably got more of the hardware and blueprints than we, but roughly we started on a fairly equal basis. It would appear that since that time they have on a persistent and consistent basis been developing their techniques over the intervening years and, I would estimate that post war ~~guess~~, particularly in the early days, they paid much more attention to this particular weapon than we. With our great advance over the Soviet ~~in those days~~ in the atomic field the result should have been

just the opposite since a ballistic missile with a high explosive warhead is just another weapon of war whereas one with a nuclear warhead starts to change the whole face of war.

On this point I conclude that knowledge of the nature of this particular Soviet scientific challenge has been brought home to the Americans people through the length and breadth of the land. It is the greatest advertising job ever done. They really wrote it in the sky. It has been done in a way that neither the government nor the press could have done it.

None of us hereafter will need to go around propagandizing the idea that we are up against an opponent who relies solely on brute force but does not have any highly developed scientific and technical competence. This particular selling job has been done for us and we can thank the Soviet that it was done effectively in 1957 and not delayed until 1958 or later.